

Attachment 9

Economic Analysis – Flood Damage Reduction Costs and Benefits

**Integrated Regional Water Management Implementation
Prop 84, Round 1**

Santa Ana Watershed Project Authority

**Santa Ana One Water One Watershed IRWM
Prop 84, Round 1 Implementation Proposal**

Project (a) Groundwater Replenishment System - Flow Equalization

C. Water Quality and Other Benefits:

Not Applicable

Project (b) Sludge Dewatering, Odor Control, and Primary Sludge Thickening

C. Water Quality and Other Benefits:

Not Applicable

Project (c) East Garden Grove Wintersburg Channel Urban Runoff Diversion

C. Water Quality and Other Benefits:

Not Applicable

Project (d) Romoland Line A Flood System

C. Water Quality and Other Benefits:

Narrative description of the project and its relationship to other projects in the Proposal:

See Attachment 3 Work plan for description.

Narrative description of the project's economic costs:

The land that makes up the Briggs Road and Juniper Flats basins consists of six assessor's parcels totaling 73.6 acres. Land values have decreased significantly since these parcels were acquired and dedicated, so the estimated purchase price contained in Attachment 4 is not comparable to the current fair market value. The total assessed value of the underlying land is \$698,925 and will be used for the purposes of this analysis.

Cost details for the project using Table 9 and the information in Table 7 (Budget):

Budget categories (a), (d), (f), (g) and (h) are included in the cost details as described in Table 7. Budget category (b) (Land Purchase/Easement) is included at the fair market value, as described in the above paragraph. Budget category (c) contains the \$90,000 described in Table 7 as remaining costs, with the remainder considered to be sunk costs. The cost of Budget category (e) going forward is expected to be equal to 15% of the total estimate, or \$15,000.

[See Table 9]

Estimates of historical flood damage data:

The City of Menifee was established in 2008, so no official records of historical flood damage are available. However, there was a 2-year storm event within the floodplain in 2009 that caused the flooding of approximately 40 homes, evacuation of residents using four-wheel drive emergency vehicles and the closure of many flooded streets. Public Works cleanup activities continued for several months including restoring culverts and streets washed out during the storm.

Estimates of existing without-project conditions:

Presently, approximately 4,200 acres lie within a FEMA Class 1 floodplain. A 100-year event would cause widespread damage to homes, businesses, Heritage High School, the Southern California Edison Power Generation Plant, the EMWD treatment plant, and several acres of agricultural land. All of these properties would need to be evacuated and closed for approximately 2 to 4 weeks. Power would be lost for at least a week. Cleanup would require approximately 50 four man crews with dump trucks and front loaders. Highway 75 and Interstate-215 would be shut down for 2-3 weeks for repairs. One year of crops would be lost. Residents and businesses would temporarily relocate, causing lost mortgage, rent and lease revenues as well as wages. Contaminated flood waters would spill into the San Joaquin River, contaminating both Canyon Lake and Lake Elsinore.

Estimates of existing with-project conditions:

After the Project is developed, storm flows are expected to decrease dramatically. A 100-year flood event like the one described above would only have the impact of a 2-year storm, such as the 2009 event described above (see historical flood damage data). Impacts of lesser storms would have little to no negative impacts.

Description of methods used to estimate without- and with-project conditions:

The majority of flood damage estimates are based on the estimated repair and replacement cost impact that 1' flood waters would have on a 2,000 square foot home (source: www.floodsmart.gov). The City of Menifee provided additional estimates for commercial, industrial, school, and agricultural property.

The estimated number of homes within the floodplain is based on the number of homes per acre within the City of Menifee as of 2010. All other estimates were derived from the Ethanac Corridor Planning Group Summary Booklet, September 2007 (see Exhibit D) and information provided by the City of Menifee regarding specific buildings and facilities.

Description of the distribution of local, regional, and statewide benefits, as applicable:

The mitigation of flood impacts described above will primarily benefit local residents. However, effects resulting from the contamination of Canyon Lake, Lake Elsinore and drinking water supplies of Eastern Municipal Water District (EMWD) would affect all nearby communities within a 5-mile radius, as well as all EMWD rate payers. The closure of I-215 and Highway 74 would affect all residents and businesses within Riverside County who utilize those major transportation corridors. The closure of I-215 would force Riverside County north-south traffic on to the I-15 resulting in major traffic jams affecting surrounding counties. It would affect emergency response time and the ability to move resources to problem areas.

Identification of beneficiaries:

Residents and businesses within the City of Menifee, all EMWD rate payers, all residents of Riverside County who require the use of I-215 and highway 74, and San Bernardino, San Diego and Orange counties who have a threat to their mobility removed.

When the benefits will be received:

Benefits will be received as of the completion date of the Project.

Uncertainty of the benefits, and:

The benefits were calculated based on a 100-year storm event. The benefits will be proportional to the level of storms that occur. Storms tend to follow the predictable path, but there will be variation.

Description of any adverse effects:

There will be no adverse effects other than short term local traffic inconvenience and construction noise. These issues were addressed in the CEQA documents.

Narrative discussion that describes, qualifies, and supports the values entered in the tables:

Project cost estimates contained in Table 17 are equal to those provided in the Water Supply Economic Analysis (see Attachment 7).

Estimates of without project flood damages (Table 19) are based on the FEMA Class 1 Floodplain map for a 100-year storm and limited historical data related to a recent 2-year storm within the floodplain. Due to the lack of comprehensive historical flood data, 5-year and 10-year without-project damage estimates are based on the projected flows as calculated by the Project engineer.

With-Project damage estimates are also based on the projected flows provided by the Project engineer.

If possible, quantify estimates of economic flood damage reduction benefits using Table 19 as applicable:

Assuming a useful life of 25 years for the flood control facilities described in this application and a discount rate of 6%, the present value of estimated flood control benefits is equal to approximately \$381 million.

[See Table 19]

Documentation to support information presented in the project(s), including studies, reports, and technical data, which will be used to assess the project's ability to produce the benefits claimed:

See Exhibit Floodplain Removal Diagram (Exhibit 5.1), Calculation of Storm Flows, EMWD groundwater management plan, and Ethanac Corridor Planning Group Summary Booklet, September 2007 (Exhibit 11.3).

Table 17- Annual Cost of Project
(All costs should be in 2009 Dollars)
Project (d) Romoland Line A Flood System (C. Meniffee)

	Initial Costs	Operations and Maintenance Costs (1)						Discounting Calculations	
YEAR	(a) Grand Total cost From Table 7 (row (i), column (d))	(b) Admin	(c) Operation	(d) Maintenance	(e) Replacement	(f) Other	(g) Total Costs (a) +...+ (f)	(h) Discount Factor	(i) Discounted Costs (a) x (h)
2009	\$0	\$0	\$0	\$0	\$0	\$0	\$0	1.000	\$0
2010	\$698,925	\$0	\$0	\$0	\$0	\$0	\$698,925	0.943	\$659,363
2011	\$886,405	\$0	\$0	\$0	\$0	\$0	\$886,405	0.890	\$788,897
2012	\$4,168,055	\$0	\$0	\$0	\$0	\$0	\$4,168,055	0.840	\$3,499,579
2013	\$1,174,569	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$1,237,569	0.792	\$980,271
2014	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.747	\$47,077
2015	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.705	\$44,413
2016	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.665	\$41,899
2017	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.627	\$39,527
2018	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.592	\$37,290
2019	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.558	\$35,179
2020	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.527	\$33,188
2021	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.497	\$31,309
2022	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.469	\$29,537
2023	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.442	\$27,865
2024	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.417	\$26,288
2025	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.394	\$24,800
2026	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.371	\$23,396
2027	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.350	\$22,072
2028	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.331	\$20,822
2029	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.312	\$19,644
2030	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.294	\$18,532
2031	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.278	\$17,483
2032	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.262	\$16,493
2033	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.247	\$15,560
2034	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.233	\$14,679
2035	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.220	\$13,848
2036	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.207	\$13,064
2037	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.196	\$12,325
2038	\$0	\$10,000	\$8,000	\$25,000	\$20,000	\$0	\$63,000	0.185	\$11,627
Total Present Value of Discounted Costs (Sum of Column (i))									\$6,566,024
Transfer to Table 20, column (c), Exhibit F: Proposal Costs and Benefits Summaries									

Comments:

(1) The incremental change in O&M costs attributable to the project.

Table 18 - Event Damage (Example) Project (d) Romoland Line A Flood System (C. Menifee)																		
Hydrologic Event	Event Probability	Storm Flows (cfs)		Acres Flooded		Homes Flooded		SF of Commercial/Industrial/High School Property Flooded		Acres of Agricultural Land Flooded		Building and Agricultural Restoration Estimates ²		Public Infrastructure Restoration Estimates ³		Event Damage		Event Benefit (Million \$)
		Without Project	With Project	Without Project	With Project	Without Project	With Project	Without Project	With Project	Without Project	With Project	Without Project	With Project	Without Project	With Project	Without Project	With Project	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
																(m) + (o)	(n) + (p)	(q) – (r)
2-Year	0.50	885	181	50.0	10.2	40	8	31,255	6,392	4.1	0.8	\$3,583,694	\$732,936	\$100,000	\$20,452	\$3,583,694	\$732,936	\$2,850,757
5-Year	0.20	1,419	253	935.4	14.3	755	12	584,698	8,935	77.0	1.2	\$67,042,132	\$1,024,491	\$185,338	\$28,588	\$67,042,132	\$1,024,491	\$66,017,642
10-Year	0.10	1,889	322	1,714.6	18.2	1,383	15	1,071,811	11,372	141.2	1.5	\$122,895,065	\$1,303,898	\$260,447	\$36,384	\$122,895,065	\$1,303,898	\$121,591,168
100-Year	0.01	3,388	640	4,200.0	36.2	3,388	29	2,625,391	22,602	345.8	3.0	\$301,030,271	\$2,591,598	\$500,000	\$72,316	\$301,030,271	\$2,591,598	\$298,438,673
Annual Expected Values																\$30,500,083	\$727,672	\$29,772,411

1: Acreage for 2-year and 100-year flood without-project based on historical flooding and FEMA maps. Other without-project acreages derived from 2-Year and 100-Year acreages based on proportional storm flows. With-project acreages assumed to be proportional to 2-Year without-project acreage based on storm flows.

2: Damage estimated to be \$50,000 per home (Source: FEMA), \$50 per square foot of Commercial/Industrial/School property (Source: City of Menifee), and \$100 per acre of agricultural land (Source: City of Menifee)

3: Source: City of Menifee

Table 19 - Present Value of Expected Annual Damage Benefits Project (d) Romoland Line A Flood System (C. Menifee)			
(a)	Expected Annual Damage Without Project (1)		\$30,500,083 *
(b)	Expected Annual Damage With Project (1)		\$727,672 *
(c)	Expected Annual Damage Benefit	(a) – (b)	\$29,772,411
(d)	Present Value Coefficient (2)		12.78
(e)	Present Value of Future Benefits Transfer to Table 20, column (e), Exhibit F: Proposal Costs and Benefits Summaries.	(c) x (d)	\$380,591,328

(1) This program assumes no population growth thus EAD will be constant over analysis period.

(2) 6% discount rate; 50-year analysis period (could vary depending upon life cycle of project).

* Estimated by DWR Flood Rapid Assessment Model (FRAM) or other method.



Floodplain Removal Exhibit



Phase 1 Facilities

26 AC Open Space
Created with Phase 1

Non-FEMA Floodplain Removal with Phase 1

FEMA Floodplain Removal with Phase 1

38 AC Open Space
Created with Phase 1

FEMA Floodplain Removal with Phase 1

Phase 1
FEMA Floodplain Removal - 640 Acres
Non-FEMA Floodplain Removal - 600 Acres

Economic Impact Summary Ethanac Corridor, Riverside County, California

ETHANAC CORRIDOR PLANNING GROUP | JANUARY 27, 2009

Prepared by: David Taussig and Associates, Inc.

DTA DAVID TAUSSIG
& ASSOCIATES
Public Finance and Urban Economics
5000 Birch Street, Ste. 6000, Newport Beach, CA 92660
Phone: 949.955.1500 / Fax: 949.955.1590

Purpose of Study

The objective of this Economic Impact Summary (the "Study") is to identify the economic impacts resulting from development of the 2,768.4-acre Ethanac Corridor study area (the "Project") located in the southwestern portion of Riverside County (the "County")¹. The impacts analyzed by David Taussig and Associates, Inc. ("DTA") include (i) regional output (gross receipts, sales, or operating budget), (ii) earnings (the sum of wages and salaries, proprietors' income, and other labor income), (iii) employment (number of jobs), and (iv) jobs housing balance. As part of the Project will be within multiple Redevelopment Project Areas, the Study will also qualitatively describe this impact. Furthermore, the Study will identify the one-time and recurring economic impacts related to the construction of the flood control facilities intended to serve the Project.

Project Description

Currently, the Project is zoned for business park, commercial, and residential. Table 1 summarizes the land uses proposed for development within the Project. These individual projects have either been proposed, approved, or are in process². Development is anticipated to have a build-out of ten years.

Table 1: Development Proposals ²

Ownership	Commercial SF	Specialty Retail SF	Office/BP SF	SF Units	MF Units
Brookfield					360
				559	
				348	
	331,974				
				302	
				210	
				65	
				302	
				75	
				55	
					396
					288
Romola General/ Malaga 74 / Friedman	120,226		156,816		204
	70,132				
	350,658		457,380		
	120,226				
	262,750	221,515			
	288,041		438,323		1,000
				172	
	50,094				
				51	
					153
	221,707				
Stonegate				182	
Total	1,815,806	221,515	1,052,519	2,321	2,401

¹ Ethanac Corridor Planning Group Summary Booklet, September 19, 2007.

² Ethanac Corridor Planning Group Summary Booklet, September 19, 2007; Rancon.

I. ECONOMIC IMPACTS OF THE DEVELOPMENT OF THE ETHANAC CORRIDOR STUDY AREA

Following are the major conclusions of the Study. The numbers listed below include both the direct and indirect economic impacts.

Employment

Development will contribute to the creation of new jobs to the local area. As shown below in Table 1, development of the Project is expected to generate **5,816 new on-site jobs**. In addition to these employment opportunities, DTA estimates that the Project will generate new, and support existing, off-site jobs in all industries of the economy, which constitute the indirect employment impacts of the project. As shown below, **2,956 jobs will support and/or supply** to the direct development, resulting in **8,772 total employees**.

Table 2: Employment

Land Use	Direct	Indirect	Total
Office/BP	2,105	1,561	3,666
Commercial Retail	3,268	1,229	4,497
Specialty Retail	443	167	610
Total	5,816	2,956	8,772

Overall, the creation of new jobs to the local economy will provide many benefits. More jobs will lead to more consumer spending by employees in existing retail establishments, as well as new retail development that will be attracted to the area as a result of this

spending. Job creation also results in increased tax revenues through increased property taxes and sales taxes related to this new development.

Total Output

The output generated by the Project reflects total gross receipts (i.e., total expenditures including sales or receipts, value of goods or services provided and other operating income). Direct output refers to the gross receipts of the on-site development. Indirect output refers to the gross receipts of the industries which support and/or supply the direct development (i.e., indirect output could include the output of an Information Technology company which plays a supportive role, but is not located on-site). Induced impacts reflect the impacts as a result of household spending of both direct (on-site) and indirect (supporting/supplying) employees. **Total output is the sum of direct, indirect and induced output.** The table below shows the expected **total recurring output for the Project to be over \$1.5 billion**.

Table 3: Total Recurring Output
(In Millions)

Land Use	Direct	Indirect	Total
Office/BP	\$355.2	\$155.4	\$510.6
Commercial Retail	\$531.1	\$357.0	\$888.1
Specialty Retail	\$93.3	\$62.7	\$155.9
Total	\$979.6	\$575.1	\$1,554.7

One-Time Impacts from Construction of Project

Development will generate one-time impacts on output and wages from the construction of the Project's buildings and all related site improvements. Below is a summary of the projected impacts on wages and output that are generated directly from construction of the Project, based on DTA wage and construction cost assumptions, which are estimated to occur over a 10-year period.

Construction Jobs

18,300 Construction Jobs

Wages/ Earnings

\$959,364,900 in Wage Earnings

Gross Sales/Output

\$2,966,221,900 in Output

Jobs/ Housing Ratio

Development of the Project will marginally improve the jobs housing balance of the County. **The Project will increase the ratio by approximately 1%.**

Redevelopment

As the Project is within several Redevelopment Project Areas ("RPAs"), it will generate a variety of revenue sources for the various redevelopment agencies, as well as other public agencies. One of the larger sources of funding will be property tax increment revenues

generated by the increase in the assessed value of the Project site. The primary purpose behind property tax increment is to enable a redevelopment agency to utilize the increased revenue provided by increases in assessed property values to re-invest in the Project Area and finance the public costs of redevelopment activities. Tax increment financing is often used to make debt service payments for tax allocation bonds issued by a redevelopment agency.

Historically, the major function of redevelopment financing Statewide has been to eliminate blight through the acquisition of land and the construction and/or improvement of public infrastructure and facilities, including roads, sewer and water improvements, flood control facilities, utilities, public buildings and parking lots. As portions of the Project are in various RPAs, these RPAs may provide funding to build a portion of the infrastructure necessary for the Project, thus, eliminating blight which currently exists on the Project site. As shown in the "Total Output" numbers above, the Project will also bring in sales tax dollars as well as create jobs and provide significant benefits to the overall economy of the surrounding Project area.

II. ECONOMIC IMPACTS OF FLOOD CONTROL FACILITIES

Following is a discussion of the anticipated one-time and annual recurring economic impacts associated with the construction of flood control facilities required for the Project. These facilities include open channels, underground storm drains and detention basins. Below is a table summarizing the estimated construction costs of these facilities.

**Table 4: Flood Control Facilities
Construction Costs (in Millions)**

Description	Estimated Costs
Phase 1 Construction	\$5.1
Phase 2 Construction	\$8.8
Phase 3 Construction	\$16.5
Phase 4 Construction	\$16.1
Right of Way Acquisition	\$18.7
Engineering and Planning	\$6.6
Total Costs	\$71.8

In evaluating the economic impacts related to the flood control facilities, the Study quantifies both direct and indirect/induced impacts on the County. **Direct** economic impacts reflect the initial or first-round impacts on jobs, earnings, and output, all of which occur directly on the development site. Indirect/induced economic impacts are the secondary and other additional rounds of economic activity that occur as a consequence of the direct impacts, and can occur elsewhere within the County. The **indirect** impacts represent the

economic activity—buying and selling of goods and services—of suppliers and other entities that support the flood control facilities *but are not employed on-site*. The **induced** impacts represent the economic activity that results from household spending by *employees* of all companies directly and indirectly affected by the flood control facilities.

In quantifying the indirect and induced economic impacts resulting from the flood control facilities, DTA utilized the Impact Analysis for Planning (IMPLAN) Input/Output Modeling System, a type of quantitative economic model that provides an approximate measure of the “multiplier effect” of a firm’s spending on payroll and the purchasing of goods and services. Like similar econometric models, IMPLAN helps to calculate the flow of payments for goods and services across different industry sectors, and between households and industries. The IMPLAN model can be envisioned simply as a large spreadsheet with hundreds of industries (plus the household sector) arrayed across the top as producers, and the same industries and households listed down the side as consumers. Each million dollars (output) in spending by any one consumer (i.e. SMES) is allocated across the producing industries from which it buys goods and services. These producing industries, in turn, spend money buying goods and services from their own distinct sets of suppliers. Thus, the IMPLAN multiplier model allows one to gauge the effect of each dollar an industry spends as it diffuses throughout a regional economy. Furthermore, it allows one to translate the overall regional impact of spending into jobs and labor income.

One-Time Impacts from Construction of Flood Control Facilities

Development of the flood control facilities will generate one-time economic impacts to construction-related jobs and total output. Below is a summary of the one-time direct, indirect, and induced economic impacts to be generated from the construction of these facilities, based on data provided by the Ethanac Corridor Planning Group and DTA wage and construction cost assumptions from comparable projects.

Table 5: Total One-Time Economic Impacts due to Flood Control Facilities Construction

Impact Category	Direct	Indirect	Induced	Total
Output	\$46,091,802	\$12,019,703	\$14,302,693	\$72,414,198
Employment	361	94	119	574

Recurring Impacts from Maintenance and Operations

The annual operation and maintenance of the flood control facilities is also expected to impact output and jobs on a recurring basis. The estimated annual operating budget of the flood control facilities employed in this Study is \$112,000. The operating budget of the facilities, also referred to as its direct output, is expected to have a multiplier effect on the County economy, thus creating additional rounds of purchasing goods and services, also termed as indirect output, by suppliers of goods and services to the flood control facilities. Please see Table 6 for a summary of the total recurring economic impact of the flood control facilities on the County.

Table 6: Total Recurring Economic Impact due to Flood Control Facilities Operation and Maintenance

Impact Category	Direct	Indirect	Induced	Total
Output	\$112,000	\$28,885	\$36,105	\$176,990
Employment	2	1	1	4

K:\CLIENTS2\Rancon\Ethanac Corridor\Executive Summary\01-23-08\Ethanac Corridor Summary EIS v2 (w Flood Control Impact).doc

EXHIBITS

**Table 1
Land Use**

Ownership			Commercial	Specialty Commercial	Business Park	SF Res	MF Res
Brookfield Land	13 HDR	Multi Family development 18.0 du/ ac; 360 units					360
	15 MDR, OS	559 lots, single family				559	
Riverside County	3 OS	park					
	19 OS	park					
Fiesta Development	4 MDR, OS	348 lots, single family				348	
	12 CR	331,974 SF	331,974				
	21 MDR	302 lots, single family community				302	
	22 MDR	210 lots, single family community				210	
	26 MDR	65 lots, single family community				65	
	27 MDR	302 lots, single family community				302	
	28 MDR	75 lots, single family community				75	
	29 MDR	55 lots, single family community				55	
Fairfield Residential	23 HDR	396 apartments					396
	24 HDR	288 apartments					288
Romola General/ Malaga 74 Friedman	7 MU	36 acres; 1/3 residential; 1/3 business park; 1/3 commercial	120,226		156,816		204
	9 OS	park					
	10 CR	7 acres of community center	70,132				
	14 CR, BP	70 acres	350,658		457,380		
	20 CR	12 acres	120,226				
Rancon	1 CR	Motte Town Center	262,750	221,515			
	2 CR	115 acres lifestyle commercial center	288,041		438,323		1,000
	5 MHDR	172 lots; single family				172	
	6 CR	5 acres neighborhood commercial	50,094				
	8 OS	community park					
	16 MHDR	51 single family lots				51	
	17 VHDR	153 units, courtyard home community (attached)					153
	18 CR	221,707 SF commercial center	221,707				
SCE	11 LI	San Jacinto substation and transition lines					
Stonegate	25 MDR	182 lots; single family residential				182	
	OS						
	OS						
Total			1,815,806	221,515	1,052,519	2,321	2,401

Table 2
Direct Output and Total Employment

BUILDING NON-RESIDENTIAL SQ.FT.

	Total Square Footage ¹	Direct Output
Office/ Business Park	1,052,519	\$355,224,994 ²
Commercial Retail	1,815,806	\$531,123,343 ³
Specialty Retail	221,515	\$93,265,077 ³
TOTAL, NON-RESIDENTIAL	3,089,840	\$979,613,414

¹ Ethanac Corridor Summary Booklet, Ethanac Corridor Planning Group, September 19, 2007 and Rancon.

² Reflects total spending (including wages) of typical office development, based on comparable projects. Includes 10% vacancy rate.

³ Based on previous study created for the Arthur Pearlman Corporation.

	SF/Employee ¹
Office/ Business Park	450
Commercial Retail	500
Specialty Retail	500

¹ County of Riverside General Plan - Hearing Draft, Appendix E.

	Square Feet¹	Direct Employees	Indirect and Induced Employees	Total Employees
Office/ Business Park	947,267	2,105	1,561	3,666 ²
Commercial Retail	1,634,226	3,268	1,229	4,497 ³
Specialty Retail	221,515	443	167	610 ³
TOTAL, NON-RESIDENTIAL	2,803,007	5,816	2,956	8,772

¹Note: Takes into consideration 10% vacancy rate, except for Specialty Retail.

² Based on direct-effect multiplier of 1.7415 total jobs per one direct "office-type" job.

³ Based on direct-effect multiplier of 1.376 total jobs per one direct retail job.

Source: Regional Input-Output Modeling System (RIMS II), Regional Economic Analysis Division, Bureau of Economic Analysis, RIMS II Multipliers (1997/2005), Riverside County.

Table 3
Total Output (Direct plus Indirect)

	Riverside County
Output (see Table 2)	
Office/ Business Park	\$355,224,994
Commercial Retail	\$531,123,343
Specialty Retail	\$93,265,077
Total Direct	\$979,613,414
Indirect and Induced Impacts	
Office/ Business Park	\$155,417,300
Commercial Retail	\$356,967,999
Specialty Retail	\$62,683,458
Total Indirect and Induced	\$575,068,757
Total Impacts	
Office/ Business Park	\$510,642,294 ¹
Commercial Retail	\$888,091,341 ²
Specialty Retail	\$155,948,535 ²
Total Recurring Economic Impacts	\$1,554,682,171

¹ County-wide output across all sectors of the economy with a final demand multiplier of 1.4375 total dollars output for each dollar of output delivered to final demand by "office-type" industries.

² County-wide output across all sectors of the economy with a final demand multiplier of 1.6721 total dollars output for each dollar of output delivered to final demand by the retail trade industry.

Table 4
One-Time Construction Impacts

Total Construction Expenditures ¹	\$1,600,421,900
Total Labor Expenditures ²	\$560,147,665
Total Non-Labor Development Costs	\$1,040,274,235
<i>Total Non-Residential Sq. Ft.</i>	<i>3,089,840</i>
<i>Total Residential Units</i>	<i>4,722</i>

	<u>Construction</u>	<u>Riverside County All Industries</u>	
	Direct Impacts	Indirect and Induced Impacts	Total Impacts
Increase in Output ³	\$1,600,421,900	\$1,365,800,000	\$2,966,221,900
Increase in Earnings ⁴	\$560,147,665	\$399,217,235	\$959,364,900
Increase in Employment ⁵	9,500	8,800	18,300

¹ Construction costs reflect amount estimated to be spent within the County.

² Assumes labor accounts for 35% of construction costs.

³ County-wide output across all sectors of the economy with a final demand multiplier of 1.8534 total dollars output for each dollar of output delivered to final demand by the construction industry per RIMS II.

⁴ County-wide earnings across all sectors of the economy with a direct effect multiplier of 1.7127 total dollars of earnings for each dollar of earnings paid directly by the construction industry per RIMS II.

⁵ County-wide employment across all sectors of the economy with a final demand multiplier of 11.4569 jobs per one million dollars of direct output delivered to final demand by construction industry per RIMS II. Direct impacts based upon the direct-effect multiplier of 1.9199 total jobs per one direct construction job.

Table 5

	Housing Units	Employees
Existing Riverside County	653,826 ¹	618,800 ²
Ethanac Corridor Project		
Direct Impact ³	4,722	5,816
Additional Indirect, County ³	N/A	2,956
Total Project	4,722	8,772
Existing plus Project	658,548	627,572
<i>Percentage Increase</i>	0.72%	1.42%
	Jobs/ Housing Ratio	
Existing Riverside County	0.95	
Existing Riverside County with Project	0.95	
Percentage Increase	0.69%	

¹State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2001-2007*, with 2000 Benchmark. Sacramento, California. Data for 2007.

² See Table 4.

**TABLE 6 - ECONOMIC IMPACT OF FLOOD CONTROL FACILITY
ETHANAC CORRIDOR PLANNING GROUP (ETHANAC CORRIDOR), COUNTY OF RIVERSIDE**

I. ONE-TIME ECONOMIC IMPACT

A. Project Construction Costs (Hard Costs) ^[1]

Preliminary Hard Costs	\$2,900,000
Phase 1	\$5,126,415
Phase 2	\$8,789,103
Phase 3	\$13,565,379
<u>Phase 4</u>	<u>\$16,080,047</u>
Total Hard Costs	\$46,460,944

% Spent Locally ^[2] 85%

B. Project Construction Costs (Soft Costs)

Right of Way	\$18,700,000 ^[3]
<u>Engineering/Design</u>	<u>\$6,600,000</u> ^[4]
Total	\$6,600,000
 % Spent Locally ^[2]	 100%

Table 1 - One-Time Economic Impact due to Flood Control Facility Construction Hard Costs

<u>Category</u>	<u>Direct Impact</u>	<u>Indirect Impact</u>	<u>Induced Impact</u>	<u>Total Impact</u>
Increase in Output	\$39,491,802	\$10,300,008	\$11,737,853	\$61,529,663
Increase in Employment	303	78	98	479
Increase in Labor Income	\$18,049,711	\$4,006,132	\$3,774,670	\$25,830,513

Table 2 - One-Time Economic Impact due to Flood Control Facility Construction Soft Costs

<u>Category</u>	<u>Direct Impact</u>	<u>Indirect Impact</u>	<u>Induced Impact</u>	<u>Total Impact</u>
Increase in Output	\$6,600,000	\$1,719,695	\$2,564,840	\$10,884,535
Increase in Employment	58	16	21	95
Increase in Labor Income	\$4,130,123	\$677,697	\$824,803	\$5,632,623

Table 3 - Total One-Time Economic Impact due to Flood Control Facility Construction

<u>Category</u>	<u>Direct Impact</u>	<u>Indirect Impact</u>	<u>Induced Impact</u>	<u>Total Impact</u>
Increase in Output	\$46,091,802	\$12,019,703	\$14,302,693	\$72,414,198
Increase in Employment	361	94	119	574
Increase in Labor Income	\$22,179,834	\$4,683,829	\$4,599,473	\$31,463,136

**TABLE 6 - ECONOMIC IMPACT OF FLOOD CONTROL FACILITY
ETHANAC CORRIDOR PLANNING GROUP (ETHANAC CORRIDOR), COUNTY OF RIVERSIDE**

II. RECURRING ECONOMIC IMPACT

A. Annual Operation and Maintenance Costs ^[5]

Annual Estimated Operation and Maintenance Costs (per Sq. Mile)	\$8,000
Project's Mileage (Sq. Miles) ^[1]	14
Total Estimated Annual Operation and Maintenance Costs	\$112,000
 % Spent Locally by County ^[2]	 100%

Table 4 - Total Recurring Economic Impact due to Flood Control Facility Operations and Maintenance

<u>Category</u>	<u>Direct Impact</u>	<u>Indirect Impact</u>	<u>Induced Impact</u>	<u>Total Impact</u>
Increase in Output	\$112,000	\$28,885	\$36,105	\$176,990
Increase in Employment	2	1	1	4
Increase in Labor Income	\$57,319	\$10,866	\$11,611	\$79,796

Notes:

[1] Based on data provided by Ethanac Corridor Planning Group.

[2] Estimate based on DTA comparable projects. Subject to change.

[3] No economic impact included for Right of Way since buyer is trading cash asset for land asset.

[4] Equal to approximately 15% of total project soft costs as provided by Ethanac Corridor Planning Group.

[5] Based on DTA comparable economic impact studies for flood control facilities. Subject to change.

Project (e) Santa Ana Watershed Vireo Monitoring

C. Water Quality and Other Benefits:

Not Applicable

Project (f) Mill Creek Wetlands

C. Water Quality and Other Benefits:

Not Applicable

Project (g) Cactus Basins

C. Water Quality and Other Benefits:

Narrative description of the project and its relationship to other projects in the Proposal:

The Cactus Basin No. 3 Project functions hand in hand with several of the other projects proposed for Proposition 84 funding. While its direct beneficiaries mostly reside in the City of Rialto, the project is part of a much larger system of facilities that impacts the Santa Ana River Watershed. While the project's primary function will be to provide the flood protection, it will also alleviate some of the demands for additional water supply as it will have recharge capacity into the basin which will benefit downstream customers. Also, because of the off-site mitigation requirements, the project will provide environmental enhancement by preserving 40 acres of undisturbed land within the Santa Ana River basin in perpetuity.

Narrative description of the project's economic costs:

Including contingencies and soft costs, the project is expected to cost approximately \$9,196,887 to construct. The construction will consist of improvements to Basins 3 and 3A. Surface water in the area will flow southward from the existing Cactus Channel into Basin #3 and from Basin #3 into Basin #3A. Surface water will then flow from Basin #3A through an existing reinforced concrete box and pipe structure (located in the southwest corner of Basin #3A) under Baseline Road into the existing Rialto Channel and Basins 1 and 2.

Cost details for the project using Table 9 and the information in Table 7 (Budget):

[See Table 9]

Estimates of historical flood damage data:

Flooding along the Rialto Channel (located immediately downstream of Cactus Basin Channels) occurs on a fairly regular basis, even during fairly moderate rain events. During these moderate events, the City of Rialto regularly has to expend resources to both manage the flooding as it is happening to ensure the public is safe, and in cleaning up after the event. In the winter of 2004/2005, flooding along the channel was so severe that it damages several property walls of residences immediately adjacent to the channel. The cost to replace the block walls was approximately \$1.2 million, which was shared by both the District and the City of Rialto.

Estimates of existing without-project conditions:

Currently, Cactus Basins 3 through 5 are all in an interim state. This project will improve Cactus Basin No. 3 which will attenuate flow upstream of Rialto Channel. Attached are estimates of damage that may be incurred for three different storm events, 10, 25, and 100 year storms in the current interim state.

Estimates of existing with-project conditions:

Also attached are estimates that show what the expected damage may be in the case that the project is constructed for the same storm frequency events.

Description of methods used to estimate without- and with-project conditions:

The without and with project conditions were estimated using WSPG software to estimate the flood plain during the 10, 25, and 100 year storm events. Once the flood plain was established, GIS software was used to pull property value information from the County Assessor's database and flood depth curves to estimate the cost of damage to the affected parcels. The without and with damage cost estimates were then compared for each storm event to determine the flood protection benefit that would be realized with the project.

Description of the distribution of local, regional, and statewide benefits, as applicable:

All flood protection benefits will be realized on a local level. According the estimates performed, the 100 year event without the project would affect an area of approximately 340 acres, all of it immediately adjacent to the Rialto Channel.

Identification of beneficiaries:

Beneficiaries include the residences and businesses in the City of Rialto who live adjacent to the Rialto Channel, as well as all other citizens who may be in the immediate vicinity during a storm event. Both the City of Rialto and the District will also benefit in that the existing flood control facilities will have improved functionality and will require less resources to maintain the system downstream of the basin.

When the benefits will be received:

The flood protection benefit will be received during the first storm after the completion of the construction. The basin's capacity will have been increased, thus attenuating storm flows that would have otherwise made their way into the Rialto Channel and potentially causing flooding.

Uncertainty of the benefits, and:

None

Description of any adverse effects:

None

Narrative discussion that describes, qualifies, and supports the values entered in the tables:

The various without and with project flood footprints were determined using industry standard engineering practices and software. The property values were taken for the County Assessor's parcel information database.

If possible, quantify estimates of economic flood damage reduction benefits using Table 19 as applicable:

[See Table 19]

Documentation to support information presented in the project(s), including studies, reports, and technical data, which will be used to assess the project's ability to produce the benefits claimed:

The flow rates used for the analysis were provided by the District's Water Resources Division, who are the custodians of the County's hydrologic data.

Table 17- Annual Cost of Project (All costs should be in 2009 Dollars) Project (g) Cactus Basin (SBCFCD)									
	Initial Costs	Operations and Maintenance Costs (1)						Discounting Calculations	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
YEAR	Grand Total cost From Table 7 (row (i), column (d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a) +...+ (f)	Discount Factor	Discounted Costs (a) x (h)
2009							\$0	1.000	\$0
2010							\$0	0.943	\$0
2011	\$9,196,887						\$9,196,887	0.89	\$8,185,229
2012		\$1,500	\$3,000	\$7,000			\$11,500	0.84	\$9,660
2013		\$1,500	\$3,000	\$7,000			\$11,500	0.792	\$9,108
2014		\$1,500	\$3,000	\$7,000			\$11,500	0.747	\$8,591
2015		\$1,500	\$3,000	\$7,000			\$11,500	0.705	\$8,108
2016		\$1,500	\$3,000	\$7,000			\$11,500	0.665	\$7,648
2017		\$1,500	\$3,000	\$7,000			\$11,500	0.627	\$7,211
2018		\$1,500	\$3,000	\$7,000			\$11,500	0.592	\$6,808
2019		\$1,500	\$3,000	\$7,000			\$11,500	0.558	\$6,417
2020		\$1,500	\$3,000	\$7,000			\$11,500	0.527	\$6,061
2021		\$1,500	\$3,000	\$7,000			\$11,500	0.497	\$5,716
2022		\$1,500	\$3,000	\$7,000			\$11,500	0.469	\$5,394
2023		\$1,500	\$3,000	\$7,000			\$11,500	0.442	\$5,083
2024		\$1,500	\$3,000	\$7,000			\$11,500	0.417	\$4,796
2025		\$1,500	\$3,000	\$7,000			\$11,500	0.394	\$4,531
2026		\$1,500	\$3,000	\$7,000			\$11,500	0.371	\$4,267
2027		\$1,500	\$3,000	\$7,000			\$11,500	0.35	\$4,025
2028		\$1,500	\$3,000	\$7,000			\$11,500	0.331	\$3,807
2029		\$1,500	\$3,000	\$7,000			\$11,500	0.312	\$3,588
2030		\$1,500	\$3,000	\$7,000			\$11,500	0.294	\$3,381
2031		\$1,500	\$3,000	\$7,000			\$11,500	0.278	\$3,197
2032		\$1,500	\$3,000	\$7,000			\$11,500	0.262	\$3,013
2033		\$1,500	\$3,000	\$7,000			\$11,500	0.247	\$2,841
2034		\$1,500	\$3,000	\$7,000			\$11,500	0.233	\$2,680
2035		\$1,500	\$3,000	\$7,000			\$11,500	0.22	\$2,530
2036		\$1,500	\$3,000	\$7,000			\$11,500	0.207	\$2,381
2037		\$1,500	\$3,000	\$7,000			\$11,500	0.196	\$2,254
2038		\$1,500	\$3,000	\$7,000			\$11,500	0.185	\$2,128
2039		\$1,500	\$3,000	\$7,000			\$11,500	0.174	\$2,001
2040		\$1,500	\$3,000	\$7,000			\$11,500	0.164	\$1,886
2041		\$1,500	\$3,000	\$7,000			\$11,500	0.155	\$1,783

Table 17- Annual Cost of Project

(All costs should be in 2009 Dollars)

Project (g) Cactus Basin (SBCFCD)

	Initial Costs	Operations and Maintenance Costs (1)						Discounting Calculations	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
YEAR	Grand Total cost From Table 7 (row (i), column (d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a) +...+ (f)	Discount Factor	Discounted Costs (a) x (h)
2042		\$1,500	\$3,000	\$7,000			\$11,500	0.146	\$1,679
2043		\$1,500	\$3,000	\$7,000			\$11,500	0.138	\$1,587
2044		\$1,500	\$3,000	\$7,000			\$11,500	0.13	\$1,495
2045		\$1,500	\$3,000	\$7,000			\$11,500	0.123	\$1,415
2046		\$1,500	\$3,000	\$7,000			\$11,500	0.116	\$1,334
2047		\$1,500	\$3,000	\$7,000			\$11,500	0.109	\$1,254
2048		\$1,500	\$3,000	\$7,000			\$11,500	0.103	\$1,185
2049		\$1,500	\$3,000	\$7,000			\$11,500	0.097	\$1,116
2050		\$1,500	\$3,000	\$7,000			\$11,500	0.092	\$1,058
2051		\$1,500	\$3,000	\$7,000			\$11,500	0.087	\$1,001
2052		\$1,500	\$3,000	\$7,000			\$11,500	0.082	\$943
2053		\$1,500	\$3,000	\$7,000			\$11,500	0.077	\$886
2054		\$1,500	\$3,000	\$7,000			\$11,500	0.073	\$840
2055		\$1,500	\$3,000	\$7,000			\$11,500	0.069	\$794
2056		\$1,500	\$3,000	\$7,000			\$11,500	0.065	\$748
2057		\$1,500	\$3,000	\$7,000			\$11,500	0.061	\$702
2058		\$1,500	\$3,000	\$7,000			\$11,500	0.058	\$667
2059		\$1,500	\$3,000	\$7,000			\$11,500	0.055	\$633
Total Present Value of Discounted Costs (Sum of Column (i))									\$8,345,447
Transfer to Table 20, column (c), Exhibit F: Proposal Costs and Benefits Summaries									
Comments:									

(1) The incremental change in O&M costs attributable to the project.

**Table 18 - Event Damage (Example)
Project (g) Cactus Basin (SBCFCD)**

Hydrologic Event	Event Probability	Damage if Flood Structures Fail	Probability Structural Failure		Event Damage		Event Benefit (Million \$)
			Without Project	With Project	Without Project	With Project	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
					(c) x (d)	(c) x (e)	(f) – (g)
10-Year	0.10	\$13,362,005	0.5	0	\$6,681,003	\$0.00	\$6,681,003
25-Year	0.04	\$17,676,319	0.75	0.1	\$13,257,239	\$1,767,631.89	\$11,489,607
100	0.01	\$24,851,989	1	0.5	\$24,851,989	\$12,425,994.60	\$12,425,995

Loss Probability Curve

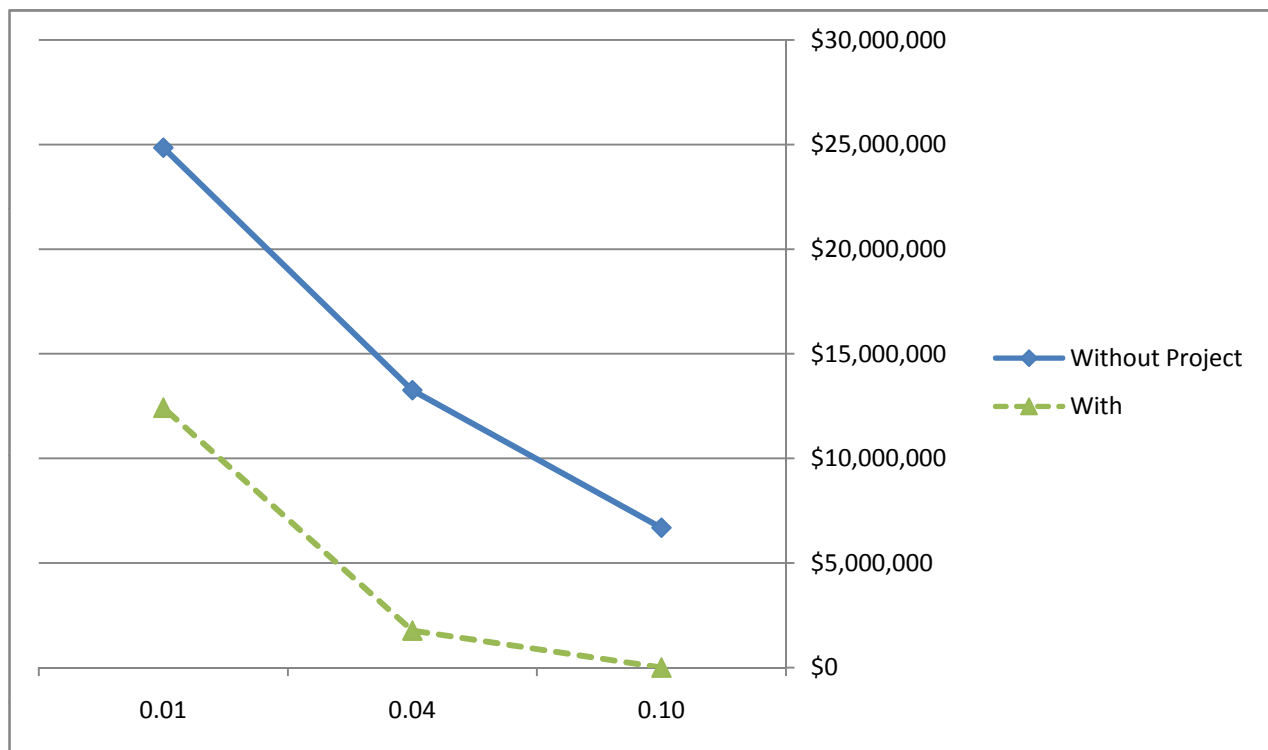


Table 19 - Present Value of Expected Annual Damage Benefits
Project (g) Cactus Basin (SBCFCD)

(a)	Expected Annual Damage Without Project (1)		\$1,169,786
(b)	Expected Annual Damage With Project (1)		\$265,933
(c)	Expected Annual Damage Benefit	(a) – (b)	\$903,853
(d)	Present Value Coefficient (2)		15.76
(e)	Present Value of Future Benefits Transfer to Table 20, column (e), Exhibit F: Proposal Costs and Benefits Summaries.	(c) x (d)	\$14,244,723

(1) This program assumes no population growth thus EAD will be constant over analysis period.

(2) 6% discount rate; 50-year analysis period (could vary depending upon life cycle of project).

Project (h) Inland Empire Brine Line Rehabilitation and Enhancement

C. Water Quality and Other Benefits:

Not Applicable

Project (i) Arlington Desalter Interconnection Project

C. Water Quality and Other Benefits:

Not Applicable

Project (j) Perris II Desalination Facility

C. Water Quality and Other Benefits:

Not Applicable

Project (k) Perchlorate Wellhead Treatment System Pipelines

C. Water Quality and Other Benefits:

Not Applicable

Project (I) Chino Creek Wellfield Development

C. Water Quality and Other Benefits:

Not Applicable

Project (m) Impaired Groundwater Recovery

C. Water Quality and Other Benefits:

Not Applicable